AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1-8. (canceled).

9. (original): An object activity recognition method comprising the steps of:

(a) obtaining feature vectors by motion estimation for video frames;

(b) determining a state, to which each frame belongs, using the obtained feature vectors; and

(c) determining an activity model, which maximizes the probability between activity models and a video frame provided from a given activity model dictionary using a transition matrix for the determined state, as the recognized activity.

10. (previously presented): The object activity recognition method of claim 9, wherein the step (c) comprises a step of finding an activity model, which maximizes probability $P(O|\lambda)$ from the given activity model dictionary $\{\lambda_1, \lambda_2, ..., \lambda_E\}$, when T is a positive integer indicating the number of frames forming the video sequence, $Z_1, Z_2, ..., Z_T$ are feature vectors of

first frame, second frame, ..., T-th frame, respectively, and if video frame $O=\{Z_1, Z_2, ..., Z_T\}$ is given and E is the number of state models.

11. (Currently amended) ~~The~~ An object activity recognition method ~~of claim 10~~ comprising the steps of:

(a) obtaining feature vectors by motion estimation for video frames;

(b) determining a state, to which each frame belongs, using the obtained feature vectors; and

(c) determining an activity model, which maximizes the probability between activity models and a video frame provided from a given activity model dictionary using a transition matrix for the determined state, as the recognized activity, wherein the step (c) comprises a step of finding an activity model, which maximizes probability $P(O|\lambda)$ from the given activity model dictionary $\{\lambda_1, \lambda_2, ..., \lambda_E\}$, when T is a positive integer indicating the number of frames forming the video sequence, $Z_1, Z_2, ..., Z_T$ are feature vectors of first frame, second frame, ..., T-th frame, respectively, and if video frame $O=\{Z_1, Z_2, ..., Z_T\}$ is given and E is the number of state models, and wherein the transition matrix is obtained by using an expectation-maximization (EM) algorithm based on the observation symbol probability $\{b_j(.)\}$ corresponding to scene j in the training process.